AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for evaluating a capacity of at least one secondary battery, the method comprising:

(a) preparing the at least one secondary battery to at least one state of being partially charged to a voltage less than a full charge voltage and being partially discharged to a voltage less than the full charge voltage;

(b) measuring an impedance spectrum for the prepared battery;

(c) mathematically operating specific internal resistance components obtained from an equivalent circuit model fitted from the impedance spectrum measured; and

(d) comparing the mathematical operation value of the resistance components with an initial discharge capacity graph to evaluate an initial discharge capacity of an unknown battery of the same group.

2. (Original) The method as claimed in claim 1, wherein the equivalent circuit model used for simulation of the impedance spectrum includes model parameters of nonlinear resistors, nonlinear capacitors and nonlinear transfer lines.

3. (Original) The method as claimed in claim 1, wherein the discharge capacity graph is a capacity correlation graph obtained from a relationship equation with the initial discharge capacity determined after a discharge performed with a discharge rate of 1.0 C.

4. (Original) The method as claimed in claim 1, wherein the secondary battery includes a lithium ion battery, a lithium polymer battery, a Ni-Cd battery and a NiMH battery.

5. (Original) The method as claimed in claim 1, wherein the batteries are charged to a constant voltage being less than a full charge voltage to provide more than 60 % of the charge capacity and less than 10 % of the charging current.

6. (Original) The method as claimed in claim 5, wherein the equivalent circuit model used for simulation of the impedance spectrum includes model parameters of nonlinear resistors, nonlinear capacitors and nonlinear transfer lines.

7. (Original) The method as claimed in claim 1, wherein the batteries are discharged to a voltage level less than a full charge voltage to provide less than 10 % of the discharge capacity.

8. (Original) The method as claimed in claim 7, wherein the equivalent circuit model used for simulation of the impedance spectrum includes model parameters of nonlinear resistors, nonlinear capacitors and nonlinear transfer lines.

9. (Original) The method as claimed in claim 1, wherein the impedance spectrum is measured in a frequency range of 10 mHz to 10 kHz.

10. (Original) The method as claimed in claim 9, wherein the equivalent circuit model used for simulation of the impedance spectrum includes model parameters of nonlinear resistors, nonlinear capacitors and nonlinear transfer lines.

11. (Original) The method as claimed in claim 10, wherein the internal resistance components obtained from the equivalent circuit model include resistance components and charge transfer resistance components related to a degradation of an electrolyte, a separator or a current collector.

12. (Original) The method as claimed in claim 11, wherein the discharge capacity graph is a capacity correlation graph obtained from a relationship equation with the initial discharge capacity determined after a discharge performed with a discharge rate of 1.0 C.

13. (Original) The method as claimed in claim 11, wherein the secondary battery includes a lithium ion battery, a lithium polymer battery, a Ni-Cd battery and a NiMH battery.